REMARKS

This Amendment is submitted in response to the non-final Office Action mailed on July 12, 2010. No fee is due in connection with this Response. The Director is authorized to charge any fees which may be required, or to credit any overpayment to Deposit Account No. 02-1818. If such a withdrawal is made, please indicate the Attorney Docket No. 3712174-00453 on the account statement.

Claims 1-4, 6-12 and 14-21 are pending in this application. Claims 5 and 13 were previously canceled without prejudice or disclaimer, and Claims 1 and 9 were previously withdrawn from consideration. In the Office Action, Claims 17-18 are rejected under 35 U.S.C. §112. Claims 2-4, 6-8, 10-12 and 14-21 are rejected under 35 U.S.C. §103. In response, Claims 17-18 have been amended. In view of the amendments and/or for at least the reasons set forth below, Applicants respectfully submit that the rejections should be withdrawn.

In the Office Action, Claims 17-18 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite. With respect to Claim 17, the Patent Office asserts that the term "retaining body" is unclear. See, Office Action, page 2, lines 17-20. In response, Applicants have amended Claim 17 to recite that "the electrolyte includes a solvent, an electrolyte salt and a body which retains the solvent and electrolyte salt." This amendment does not add new matter. The amendment is supported in the Specification at, for example, page 4, paragraphs 46-47. As such, Applicants respectfully submit that Claim 17 is not indefinite.

With respect to Claim 18, the Patent Office asserts that "[i]t is unclear as to what the shape of a 'film-shaped' package is." See, Office Action, page 2, lines 21-22; page 3, line 1. In response, Applicants have amended Claim 18 to recite a "package part made of a film." This amendment does not add new matter. The amendment is supported in the Specification at, for example, page 4, paragraphs 40-43. Thus, Applicants respectfully submit that Claim 18 is not indefinite.

Accordingly, Applicants respectfully request that the rejection of Claims 17-18 under 35 U.S.C. §112, second paragraph, be withdrawn.

In the Office Action, Claims 2-4, 6-8, 10-12 and 14-21 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Publication No. 2002/0117469 A1 to Jito et al ("*Jito*") in view of U.S. Patent No. 5,436,091 to Shackle et al. ("*Shackle*"). For at least the reasons set forth below, Applicants respectfully submit that, even if combinable, *Jito* and *Shackle* fail to disclose or render obvious each and every element of the present claims.

Independent Claims 2 and 10 recite, in part, an anode including an anode current collector having a projection formed on a substrate; and an anode active material layer being formed on and covering the anode current collector and projection through at least one method selected from the group consisting of a vapor deposition method, a liquid-phase deposition method and a sintering method, and including at least one material selected from the group consisting of silicon (Si) and silicon compounds, wherein an average diameter of the projection ranges from about 3 μm to about 10 μm. By forming the claimed projection on the anode current collector, the adhesion between the active material and the current collector may be improved, thereby preventing the anode active material layer from falling off or cracking during charge and discharge. See, Specification, page 1, paragraphs 5 and 11-12; pages 1-2, paragraph 13; page 2, paragraph 20; page 4, paragraph 38. In contrast, the cited references fail to disclose or render obvious every element of the present claims.

For example, even if combinable, *Jito* and *Shackle* fail to disclose or suggest an anode current collector having a projection as recited, in part, by Claims 2 and 10. The Patent Office asserts that *Jito* discloses an anode current collector having a projection. See, Office Action, page 3, lines 18-19; page 5, lines 1-2. However, the portion of *Jito* relied on by the Patent Office merely discloses etching the surface of a current collector to remove at least part of a surface-treated layer and depositing a film on the etched surface. See, *Jito*, page 1, paragraph 10. Nowhere does *Jito* suggest that its current collector has a projection or that etching the surface of the current collector forms a projection. In fact, none of the figures of *Jito* show a projection formed on the current collector 7, and *Jito* fails to use the term "projection" anywhere in its disclosure. See, *Jito*, Fig. 1.

Instead, *Jito* is entirely directed to improving the adhesion of the current collector to the anode material by removing a treated layer or oxide film in the surface of the current collector. See, *Jito*, page 1, paragraphs 9-10 and 14. *Jito* teaches that when a thin film of anode active material is deposited on an anode current collector by CVD or sputtering, components of the current collector diffuse into the thin film and improve the adhesion. See, *Jito*, page 1, paragraph 13. However, surface-treated layers or oxide films formed on the surface of the current collector can suppress diffusion of the current collector into the thin film and thereby decrease adhesion between the current collector and thin film. See, *Jito*, page 1, paragraphs 11-12. Furthermore, excessive diffusion of the current collector into the thin film can also decrease adhesion. See, *Jito*, pages 1-2, paragraph 15. Therefore, *Jito* teaches controlling the amount of etching of the

surface-treated layer or oxide film to improve the adhesion between the current collector and thin film. See, *Jito*, pages 1-2, paragraph 15. Nowhere does *Jito* teach or suggest that its surface-treated layer or oxide film is etched to form a projection on its current collector.

The Patent Office relies on *Shackle* merely for the disclosure of a microroughened surface having irregularities protruding from the surface by a distance of 0.1-10 μm. See, Office Action, page 3, lines 6-8. However, *Shackle* is entirely directed to forming its microroughened surface on a cathode current collector. See, *Shackle*, 1:15-21; 2:45-51 and 59-66; 3:8-33 and 38-43. In fact, *Shackle* teaches that the irregularities which protrude from the surface by a distance of 0.1-10 μm are formed on the surface exposed to the cathode composition. See, *Shackle*, 4:54-59. Nowhere does *Shackle* disclose or even suggest forming its microroughened surface on the anode current collector. Instead, *Shackle* merely teaches that its anode layer 18 "may take the form of a lithium foil, a lithium coated foil such as nickel or copper foil having a layer of lithium deposited on its surface or a lithium alloy." See, *Shackle*, 5:34-37. Therefore, even if combinable, *Jito* and *Shackle* fail to disclose or suggest an anode current collector having a projection in accordance with the present claims.

Moreover, one of ordinary skill in the art would have no reason to vary the size of the alleged projections of *Jito* to obtain an anode wherein an average diameter of the projection ranges from about 3 μm to about 10 μm because *Jito* and *Shackle* fail to teach that the average diameter of irregularities or projections has any particular effect on the adhesion of the anode active material layer or the performance of the battery. "A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation." See, M.P.E.P. § 2144.05(B) (2009). As discussed previously, *Jito* fails to teach that its anode current collector includes any projections. Even if *Jito* teaches projections, *Jito* fails to teach or suggest that the average diameter of the projections has any effect on the adhesion of the anode active material layer to the current collector or the overall performance of the battery. Instead, *Jito* merely teaches varying the ion beam radiation duration time for etching its treated layer to achieve a desired degree of adhesion. See, *Jito*, page 2, paragraphs 24-29; Tables 1-2.

Furthermore, *Shackle* is entirely directed to a cathode current collector having irregularities on its surface to improve adhesion between the cathode current collector and the cathode composition. See, *Shackle*, 1:15-21; 2:45-51 and 59-66; 3:8-33 and 38-43. *Shackle* fails

to disclose that the average diameter of its irregularities achieves any particular result, let alone improved adhesion between the anode active material and the anode current collector. Therefore, Applicants respectfully submit that *Jito* and *Shackle* fail to disclose or render obvious an anode current collector having a projection, wherein an average diameter of the projection ranges from about 3 μm to about 10 μm as required, in part, by Claims 2 and 10.

Accordingly, Applicants respectfully request that the rejection of Claims 2-4, 6-8, 10-12 and 14-21 under 35 U.S.C. §103(a) to *Jito* and *Shackle* be withdrawn.

For the foregoing reasons, Applicants respectfully submit that the present application is in condition for allowance and earnestly solicit reconsideration of same.

Respectfully submitted,

K&L GATES LLP

BY _____

Thomas C. Basso
Reg. No. 46,541
Customer No. 29175

Date: October 11, 2010